

NEW SPECIES OF *CERNOTINA* ROSS (INSECTA: TRICHOPTERA: POLYCENTROPODIDAE) FROM THE AMAZON BASIN IN NORTHEASTERN PERU AND NORTHERN BRAZILJAN L. SYKORA<sup>1</sup>

Research Associate, Section of Invertebrate Zoology

## ABSTRACT

Four new species of *Cernotina*—*C. harrisi*, *C. nigridentata*, *C. aestheticella*, and *C. ecotura*—are described from light-trap samples collected in the upper Amazon region in Peru and Brazil. *Cernotina bibranchiata* Flint and *C. cygnea* Flint are reported as new records for Peru. In addition, new figures of male genitalia of *C. spinigera* Flint are provided.

KEY WORDS: *Cernotina*, Trichoptera, microcaddisflies, Amazon, systematics

## INTRODUCTION

This contribution is based on two collections in the upper Amazon River basin in Peru and Brazil by Dr. L. J. Davenport from Sanford University, Birmingham, Alabama, and by Dr. Jan Wilt and George Henrych from Boa Vista, Brazil, and Pittsburgh, Pennsylvania, respectively. The microcaddisflies from the Peruvian collection were studied previously by Harris and Davenport (1992). The samples available to us were collected in the vicinity of the Explorama Lodge located approximately 50 km NE of Iquitos on the Río Yanomono, just upstream from its confluence with the Amazon or Marañon (3°23'S, 72°52'W). The second locality in Peru was the Explornapo Camp located about 70 km NNE of Iquitos (3°10'S, 72°54'W) on the Río Sucusari. The area could be described as tropical floodplain forest with water levels fluctuating up to 10 m per year (Harris and Davenport, 1992). Additional light-trap samples were collected in Brazil by Dr. Jan Wilt and Mr. George Hendrych in Estado Roraima in the vicinity of Ecotur Park on Río Aqua Boa do Univini and in Boa Vista at Río Branco.

This publication deals with the genus *Cernotina* originally described from North America but recorded also from Central America, West Indies, and South America including Argentina (Flint, 1972, 1974, 1983). A high diversity of closely related *Cernotina* species has been reported from the Amazon Basin indicating that this region is the center of evolution of this genus (Flint, 1971). Therefore, it is not surprising that *Cernotina* was the dominant macrocaddisfly genus in the samples from Peru and Brazil. The collections contained a total of eight species including four previously described by Flint (1971). The type material of the four new species described in this paper is deposited in the Carnegie Museum of Natural History, Pittsburgh, Pennsylvania.

<sup>1</sup> University of Pittsburgh Graduate School of Public Health, Department of Environmental and Occupational Health, 260 Kappa Drive, Pittsburgh, Pennsylvania 15238.  
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## SYSTEMATIC ENTOMOLOGY

*Cernotina harrisi*, new species

(Fig. 1-3)

*Diagnosis.*—This species is characterized by a combination of features found in male genitalia. These include wide anterodorsal aspect of segment X tapering to a split posterior section with obliquely truncate apices; short, stout dorsolateral lobe of preanal appendages with robust black, pointed apex directed ventromesad, and a second similarly shaped process located in the center of mesal margin and extended anteromesad.

*Description.*—Male: length 3.9 mm. Legs and antennal segments yellowish, rest of the body yellow brown. Wings venation and general structure typical for genus. Ninth abdominal segment produced anterolaterally, lateral view triangular, dorsal aspect broad, lateral margins with slight indentations, posteroventral margins deeply incised with rounded posterolateral sections. Segment X partially inserted into segments IX and VIII, in dorsal view triangular with lightly sclerotized, anterodorsal section deeply incised forming blade-like anterolateral processes, broad and bulbous midsection tapering posteriorly to a long apical lobe divided by a mesal split into obliquely truncate apices bearing several spines on mesal margins; lateral view semicircular with slightly undulate ventral margins. Dorsolateral lobe of preanal appendages stout, roughly triangular, shorter than segment X, with broad midsection tapering into pointed, black apex angled sharply ventromesad, center of mesal margin produced into distinct, large, black, pointed process extended anteromesad; lateral view of ventromesal lobe triangular and produced posteriorly into rounded apex with a row of spines on posterior margin. Inferior appendages elongate, rectangular, with rounded apex slightly curved ventrad, anterodorsal lobe long, in lateral view sinuous and sickle-shaped, ventral view of apical section curved laterad with a row of setae mesally; posteromesal lobe short and round with dark, apically pointed process directed mesad. Phallus slender with internal structure obscure but with a pair of dark internal spines.

*Remarks.*—This species seems to be closely related to *C. nigridentata*. Both species have the short dorsolateral lobe of the preanal appendages produced into a dark apical tooth and a ventromesal, black, pointed projection centered on the ventral margin. Both species can be separated easily by the shape and size of the posteromesal lobe of the inferior appendages which in *C. nigridentata* is well developed and longer than the main body of the inferior appendages. Based on the available material, this species is the most common *Cernotina* in the vicinity of Explorama Lodge and Explornapo Camp.

*Type Specimens.*—Holotype, male, Peru: Departamento Loreto, bank of Río Yanomono just below Explorama Lodge, 10 January 1993, L. J. Davenport. Paratypes, same data as holotype, 12 males; Peru: Loreto, Edge of quiet backwater adjoining Explornapo Camp, 15 January 1993, L. J. Davenport, 27 males.

*Etymology.*—Named for Dr. Steve Harris who provided the specimens for the species described in this paper.

*Cernotina nigridentata*, new species

(Fig. 4-6)

*Diagnosis.*—This species is characterized by the dorsal lobe of preanal appendages with prominent, black, apical and ventromesal projections; broad, undivided segment X, and by a long blade-like apicommesal process of the inferior appendages extending beyond apex of the main lobe.

*Description.*—Male: length 3.5 mm. Legs and antennae yellow; thorax, abdomen, and wings brownish. Wing venation and general structure typical for genus. Ninth segment in lateral view triangular with rounded anterior margin, central section of posterior margin produced in a rounded lobe providing support for the inferior appendages. Dorsal aspect of segment X bulbous with broad and inflated anterior part tapering to short and truncate apex composed of ventral, small, bilobed and membranous

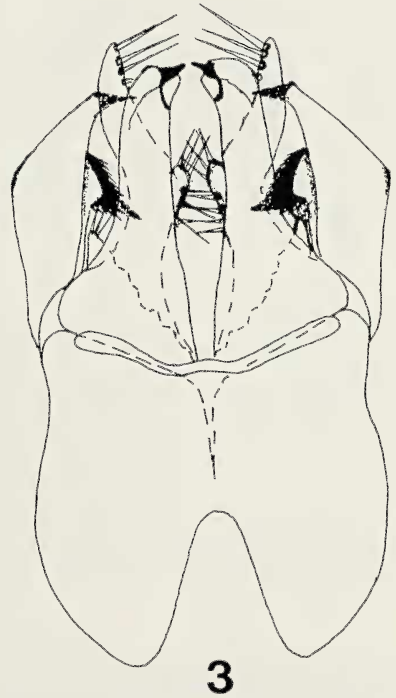
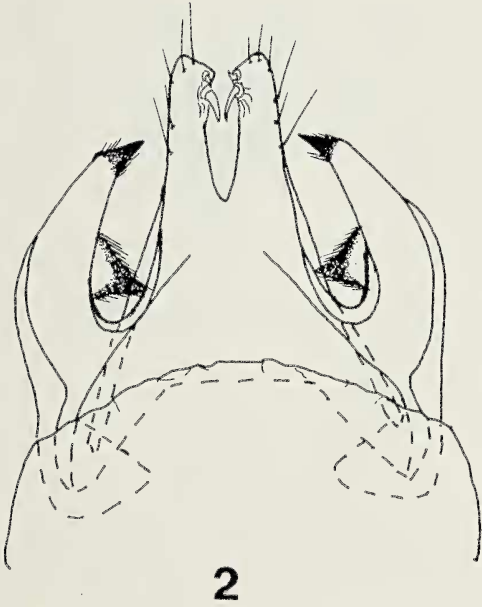
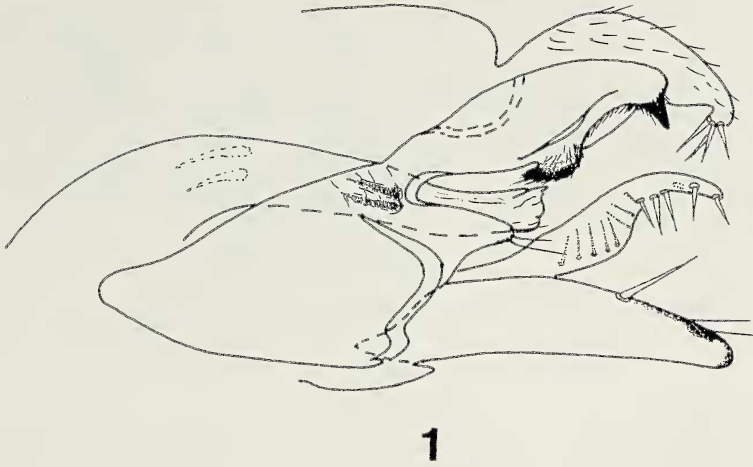


Fig. 1-3.—*Cernotina harrisi*, new species, male genitalia; 1, lateral view; 2, dorsal view; 3, ventral view.

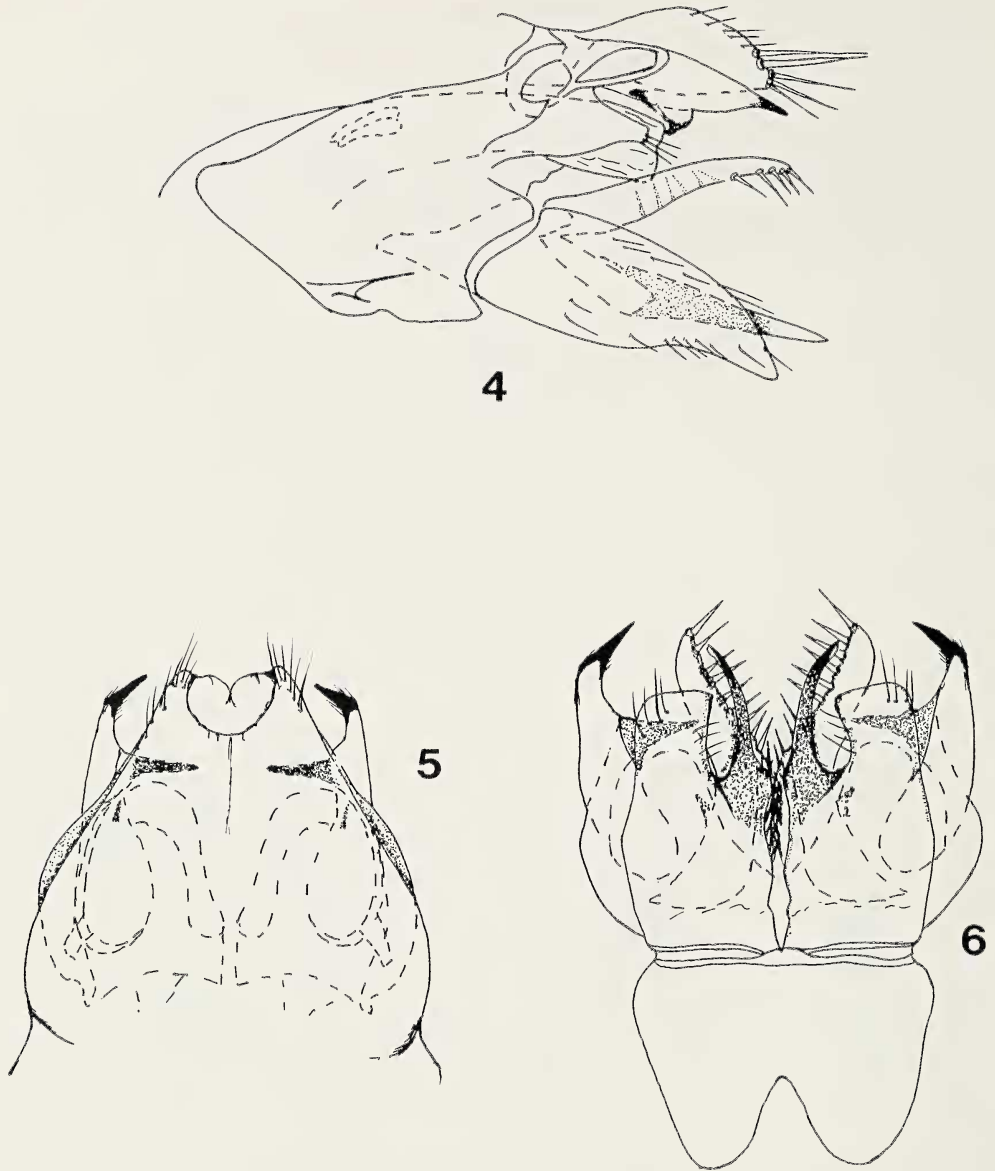


Fig. 4-6.—*Cernotina nigridentata*, new species, male genitalia; 4, lateral view; 5, dorsal view; 6, ventral view.

lobe flanked laterally by lightly sclerotized posterolateral extension of dorsum; lateral aspect halfmoon-shaped with blunt posterior margin bearing long setae. Preanal appendages with dorsolateral lobe elongated, gradually tapering to a single finger-shaped, blackened posterodorsal apex, center of ventromesal margin expanded into broad, black, pointed process directed ventromesad; ventromesal lobe produced posteriorly with several setae on truncate apex. Inferior appendages long, in lateral view with rounded apex curved slightly ventrad, ventral aspect of the main body with truncate and broad apex; anterodorsal lobe almost as long as main body, slightly sinuous with a row of large setae mesally; posteromesal lobe bladelike, elongated, well separated from the main lobe, longer than main body of

inferior appendages and gradually tapering to sharp apex curved laterad. Phallus tubular with two internal spines and several membranous folds at the apex.

*Remarks.*—This species is closely related to *C. harrisi*. It differs most noticeably in the shape of the inferior appendages with a distinct posteromesal lobe which is well defined and longer than the main body, and segment X which is broad and not divided into two distinct lobes.

*Type Specimens.*—Holotype, male, Peru: Departamento Loreto, banks of Yanomono Creek just below Explorama Lodge, 10 January 1993, J. L. Davenport. Paratype, same data as holotype, one male.

*Etymology.*—Latin for black-toothed, referring to the dark processes on the preanal appendages.

*Cernotina aestheticella*, **new species**  
(Fig. 7–9)

*Diagnosis.*—This species may be recognized by a combination of characters including the divided ventromesal lobe and bifid dorsolateral lobe of the preanal appendages, fused anterodorsal aspect of segment X, and short, free apical section of the anterodorsal lobe of inferior appendages.

*Description.*—Male: length 3.5 mm. Legs and antennae yellowish, rest of body yellowish brown, wings pale brown. Wing venation and general structure typical for genus. Lateral view of ninth abdominal segment triangular with rounded anterior and posteroventral section, ventral aspect broad, anterior margin with round, deep incision, lateral margins indented in middle. Dorsal aspect of segment X membranous, partially divided with narrow groove along midline and shallow, triangular incision in apical margin; lateral aspect sinuate, curved ventrad with anteroventral margin covered by leaf-like, pointed scales and with elongated apices slightly directed dorsad. Preanal appendages fused ventrolaterally with segment X, dorsolateral lobe bifid with apex produced into beak-shaped structure with two long, black spines, ventromesal lobe divided into two sections; main ventromesal body with elongated, slender posterior section and narrow anterolateral process covered by small dents with shallow incision at apex. Inferior appendages with anterodorsal lobe partially fused with and shorter than main body of inferior appendages and produced into club-shaped, free apical section; posteromesal lobe not separated from main body and forming darkened, hook-shaped, short process. Phallus membranous, indistinct internally with two dark spines.

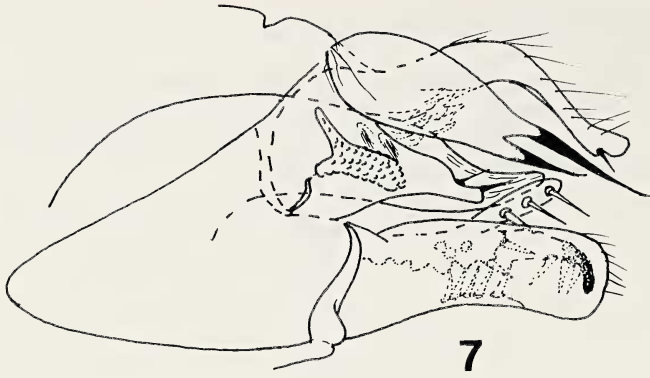
*Remarks.*—This species is related to *C. declinata* Flint from which it differs by the shape and structure of the preanal appendages, the rounded apex of the inferior appendages, and segment X with a triangular incision in the apical margin. The most unusual characteristic which clearly separates this species from any known *Cernotina* is the additional lateral process from the ventromesal lobe of the preanal appendages. Additional material of this species is needed to determine the morphology and taxonomical significance of this character.

*Type Specimen.*—Holotype, male, Peru: Departamento Loreto, bank of Yanomono Creek just below Explorama Lodge, 10 January 1993, L. J. Davenport.

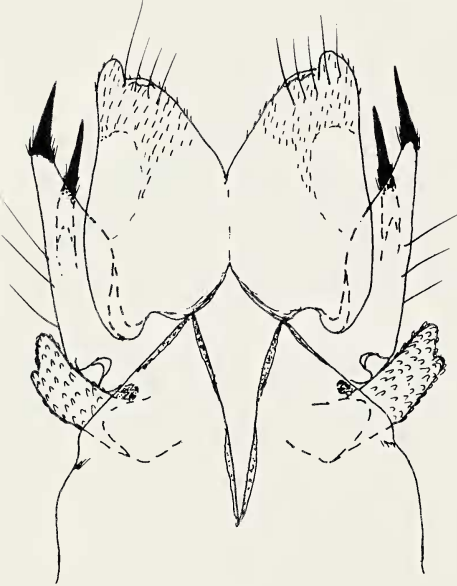
*Etymology.*—Named for its aesthetically pleasing morphological structures.

*Cernotina ecotura*, **new species**  
(Fig. 10–14)

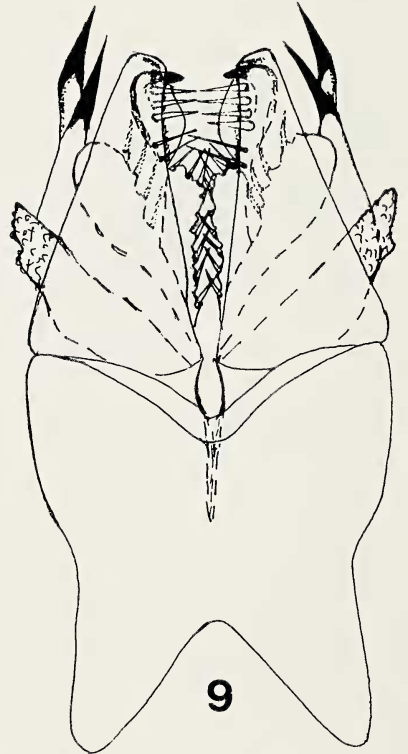
*Diagnosis.*—This species is characterized by specific morphological features found in male genitalia that include the dorsolateral lobe of the preanal appendages with broad base tapering to a long, slender apical section with pointed apex directed dorsomesad, cup-shaped main body of the inferior appendages with fused and complex posteromesal lobe and miniature anterodorsal lobe.



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Fig. 7-9.—*Cernotina aestheticella*, new species, male genitalia; 7, lateral view; 8, dorsal view; 9, ventral view.

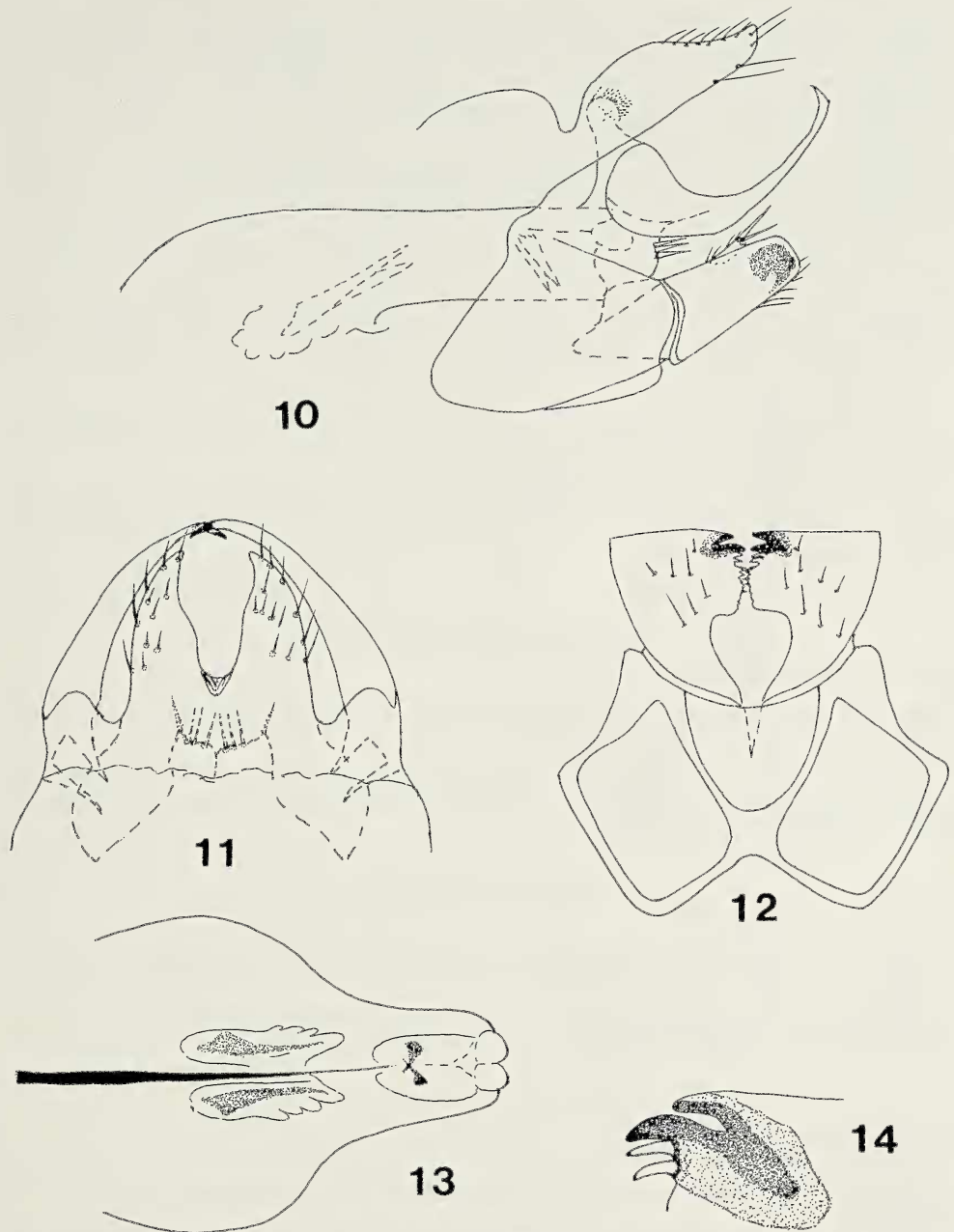


Fig. 10–14.—*Cernotina ecotura*, new species, male genitalia; 10, lateral view; 11, dorsal view; 12, ventral view; 13, phallus, dorsal view; 14, posteromesal lobe of inferior appendages, ventral view.

*Description*.—Male: length 4.0 mm. Body, legs, and antennae yellowish brown in alcohol, wings colorless and transparent. Wing venation and general structure typical for genus. Ninth segment in lateral view almost triangular with rounded posterior and anteroventral margins; ventral aspect broad with exoskeleton forming “sunglass frame” structure. Segment X lightly sclerotized, deeply incised middorsally forming broad lateral lobes with pointed apices sparsely covered with long setae and directed posteromesad, in lateral view roughly triangular with rounded anterodorsal portion and straight ventral margin. Preanal appendages bilobed; dorsolateral lobe with rounded anterodorsal margin and broad base tapering to long, narrow apical portion slightly bent dorsad with pointed apex directed dorsomesad; ventromesal lobe short, broad, and truncate with eight setae on posterior margin and two tubercles on posterolateral corners. Inferior appendages with rudimentary, short, and verrucous anterodorsal lobe with several small setae on dorsal and posterior margins; posteromesal lobe fused with main lobe forming complex dark structure with posteromesal corners bearing two black, hook-shaped teeth and two lightly colored spines; main body of inferior appendages in lateral view almost quadrangular with rounded apex, ventral aspect cup-shaped with verrucous mesal margin. Phallus extended into relatively short, tubular apical section and broad posterior portion; pair of large straight spines posteriorly and two slightly curved, shorter spines apically.

*Remarks*.—This species is unique and does not seem to be related to any of the known species of *Cernotina*. The structure of the preanal and inferior appendages is unlike any other species of *Cernotina*.

*Type Specimen*.—Holotype, male, Brazil: Estado Roraima, Boa Vista, R o Branco, December 14, 1995, Dr. Jan Wilt and George Hendrych. Paratype, same data as holotype, one male.

*Entomology*.—Named for Ecotur Park, the base camp of the expedition.

#### *Cernotina bibranchiata* Flint

*Cernotina bibranchiata* Flint, 1971:37.

*Record*.—This species was reported from the Amazon basin in Brazil (Flint, 1971). This is a new record for Peru.

*Material*.—Peru: Departamento Loreto, blackwater creek outlet of Lake Shimigay 2 km upstream of Napo River from mouth of Sucusari River, 15 January 1993, L. J. Davenport, one male.

#### *Cernotina cygnea* Flint

*Cernotina cygnea* Flint, 1971:37.

*Record*.—Flint (1971) described this species from the Amazon River basin in Brazil. It is a new record for Peru.

*Material*.—Peru: Departamento Loreto, edge of quiet backwater adjoining Explornapo Camp, 15 January 1993, L. J. Davenport, one male.

#### *Cernotina decembens* Flint

*Cernotina decembens* Flint, 1971:37.

*Cernotina decumbens* Flint, 1971:62.

*Report*.—Flint (1971) reported this species from the Amazon River basin in Brazil.

*Material*.—Brazil: Estado Roraima, R o Aqua Boa, December 15, 1995, Dr. Jan Wilt and George Hendrych, one male.

#### *Cernotina spinigera* Flint (Fig. 15–19)

*Cernotina spinigera* Flint, 1971:38.

*Record*.—This species is widely distributed in the Amazon River basin. In order



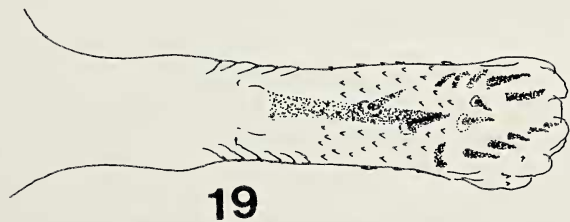
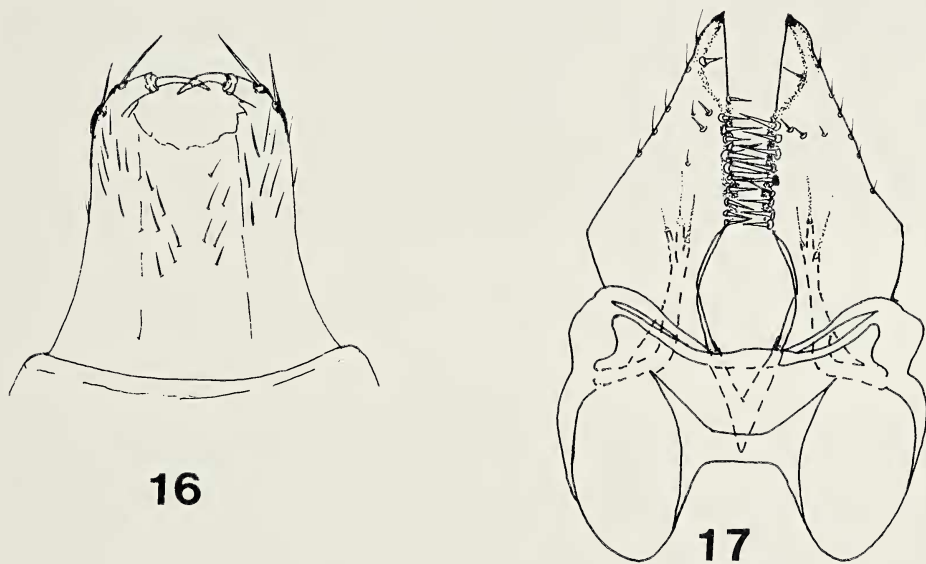
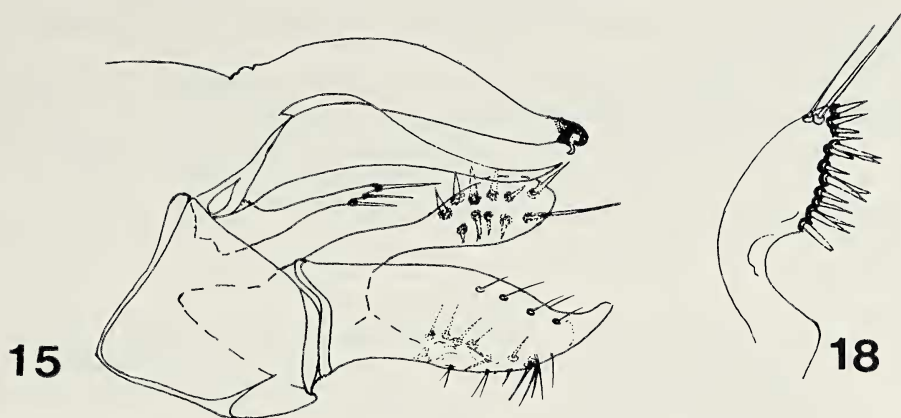


Fig. 15–19.—*Cernotina spinigera* Flint, male genitalia; 15, lateral view; 16, tenth segment, dorsal view; 17, ventral view; 18, anterodorsal lobe of inferior appendages, dorsal view; 19, phallus, dorsal view.

to facilitate identification of this species, new figures of male genitalia are included in this paper.

*Material*.—Brazil: Estado Roraima, Boa Vista, December 15, 1995, George Hendrych and Dr. Jan Wilt, one male.

#### ACKNOWLEDGMENTS

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